Section II. **CLAIMS**

Set out below are pending claims 39-60 as entered in the application at the time of its filing on August 21, 2001 and claims 61-67 newly added herein.

39. (Original) A single crystal article, consisting essentially of a single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, said article having a three dimensional (x,y,z) character wherein each of the dimensions x, y and z is at least 100 micrometers, and said single crystal material no defects from thermal coefficient of expansion differences.

40. (Original) A single crystal GaN article, consisting essentially of a single crystal GaN material, optionally n-, p- or semi-insulatively doped, and having a three dimensional (x,y,z) character wherein each of the dimensions x, and y is at least 100 micrometers and z is at least 1 micrometer, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

41. (Original) A single crystal GaN article of cylindrical or disc-shaped form wherein the diameter is at least 200 micrometers and the thickness is at least 1 micrometer, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

42. (Original) A single crystal GaN article of cylindrical or disc-shaped form, having a thickness of at least 100 micrometers and a diameter of at least 2.5 centimeters, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

43. (Original) A single crystal article according to claim 39, wherein the bulk single crystal comprises a surface having a microelectronic device structure or substructure formed thereon.

44. (Original) A single crystal article according to claim 39, comprising a doped surface region.

45. (Original) A single crystal article according to claim 44, wherein the doped surface region silicon-doped.

46. (Original) A single crystal article according to claim 45, wherein the silicon-doped surface region has an ohmic contact structure fabricated thereon.

47. (Original) A single crystal article according to claim 39, where the single crystal material comprises a compositionally graded ternary metal nitride selected from the group consisting of AlGaN, InGaN, and AlInN.

48. (Original) A single crystal article according to claim 39, wherein the single crystal material is doped with a dopant selected from the group consisting of Si, Ge, S, Se, Mg, Zn, Be, V, and Fe.

49. (Original) A single crystal article according to claim 39, wherein the single crystal material is n-doped.

50. (Original) A single crystal article according to claim 39, wherein the single crystal material is p-doped.

51. (Original) A single crystal article according to claim 39, wherein the single crystal material is semi-insulatively-doped.

52. (Original) A single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, produced by a process of growing the bulk single crystal material heteroepitaxially on a sacrificial base and removing the sacrificial base while the bulk single crystal material is close to the growth temperature of the material.

53. (Original) A single crystal material according to claim 52, comprising GaN.

54. (Original) A single crystal material according to claim 52, comprising a AlGaN.

55. (Original) A single crystal material according to claim 52, comprising a InGaN.

56. (Original) A single crystal material according to claim 52, having a three dimensional character wherein each of said dimensions is at least 100 micrometers.

57. (Original) A single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, produced by a process of growing the bulk single crystal material heteroepitaxially on a sacrificial base and removing the sacrificial base while the bulk single crystal material is at elevated temperature by fracturing the substrate from the bulk single crystal material via pressure deriving from an implanted species.

58. (Original) A single crystal material according to claim 57, wherein said implanted species comprises hydrogen.

59. (Original) A single crystal material according to claim 57, having a three dimensional character wherein each of said dimensions is at least 100 micrometers.

60. (Original) A single crystal GaN article having a diameter greater than 10 inches, wherein the bulk single crystal GaN material has no defects from thermal coefficient of expansion differences.

61. (New) A single crystal GaN substrate for fabrication of a microelectronic device structure, said substrate having a thickness of at least 100 micrometers, and a diameter of at least 2.5 centimeters, and being free of defects caused by thermal coefficient of expansion differences.

62. (New) A single crystal GaN substrate, grown on a substrate heterogeneous to GaN from which the single crystal GaN substrate has been obtained by removing the heterogeneous

substrate therefrom prior to cooling the single crystal GaN substrate by more than 300°C from its growth temperature.

63. (New) A single crystal GaN substrate grown on a gallium arsenide substrate followed by etching of the gallium arsenide to yield the GaN single crystal substrate free of defects caused by thermal coefficient of expansion differences.

64. (New) The GaN single crystal substrate of claim 63, wherein the GaN single crystal substrate is of three dimensional (x,y,z) character wherein each of the dimensions x, y is at least 100 micrometers and the dimension z is at least 1 micrometer.

65. (New) The GaN single crystal substrate of claim 63, having a thickness of from 1 to 1,000 micrometers.

66. (New) A device structure including a device fabricated on a GaN single crystal substrate as in claim 63.

67. (New) The device structure of claim 66, wherein the device is selected from the group consisting of LEDs, lasers, detectors, and transistors, and device precursor structures thereof.